Patent Claims

1. An insulating glass unit (1) having at least two glass panes (2, 3), a fastener (4) for fixing the position of the glass panes (2, 3), and a sealing element (5) for setting a distance between the glass panes (2, 3) and for gas-tight lateral insulation of the pane intermediate space (SZR) enclosed by the glass panes (2, 3), the sealing element (5) containing at least one gas-tight middle part (6) and two lateral gap seals (7, 8), each of which is situated in the area between one of the glass panes (2; 3) and the middle part (6),
characterized in that at least one diffusion-tight cushion (9; 10), which presses directly against one of the two gap seals (7, 8), is situated directly adjoining the middle part.

2. The insulating glass unit according to Claim 1,
characterized in that a diffusion-tight cushion (9; 10) is situated directly adjoining the gap seal (7, 8) and the middle part (6) between each of the two gap seals (7, 8) and the middle part (6) of the sealing element (5).

3. The insulating glass unit according to one of Claims 1 or 2,
characterized in that the cushion (9; 10) is essentially made of a material which has a Shore-A hardness according to DIN 53505 of 50 N/mm² to 70 N/mm².

4. The insulating glass unit according to one of the preceding claims,
characterized in that the cushion (9; 10) is essentially made of an elastomeric plastic, in particular EPDM, polyurethane, an acrylonitrile butadiene elastomer, a chlorobutadiene elastomeric, a fluoroelastomer, or a silicone.

5. The insulating glass unit according to one of the preceding claims,
characterized in that the cushion (9; 10) is provided on at least one surface (11, 13; 12, 14) with a gas-tight layer, in particular a metal layer.

6. The insulating glass unit according to Claim 5,
characterized in that the gas-tight layer is applied to the surface (11; 12) of the cushion (9; 10) facing toward the inner pane intermediate space (SZR).

7. The insulating glass unit according to one of the preceding claims,
characterized in that the at least one cushion (9; 10) is extruded onto the middle part (6).

8. The insulating glass unit according to one of the preceding claims,
characterized in that the gap seal (7; 8) is made of a synthetic, in particular elastomeric plastic, preferably polyisobutylene.

9. The insulating glass unit according to one of the preceding claims,
characterized in that the gap seal (7; 8) at least partially lies in a trough (15; 16) in a side of the sealing element (5) facing toward the glass pane (2; 3).

10. The insulating glass unit according to Claim 9,
characterized in that the cushion (9; 10) comprises two profiled strips (25, 26; 27, 28) situated neighboring one another, which enclose the trough (15; 16) between them.

11. The insulating glass unit according to one of the preceding claims,
characterized in that the middle part (6) is a gas-tight hollow profile, in particular made of metal, in whose cavity (17) a desiccant is preferably located.

12. The insulating glass unit according to one of the preceding claims,
characterized in that the fastener (4) is at least one clamp, made of metal in particular, which externally encloses the glass panes (2, 3) and presses them against the sealing element (5).

13. The insulating glass unit according to Claim 12,
characterized in that the clamp (4) encloses the entire outer edge of the insulating glass unit (1).

14. The insulating glass unit according to one of Claims 12 or 13,
characterized in that the clamp (4) has a U-shaped cross-section having a front side (18) and two leg sides (19, 20) pressing on the glass panes (2, 3).

15. The insulating glass unit according to Claim 14,
characterized in that at least one of the leg sides (19, 20) of the clamp (4) has at least one bulge (21; 22) toward the pane (2; 3).

16. The insulating glass unit according to one of Claims 12 through 15,
characterized in that the clamp (4) has at least one bulge (23) on its front side (18).

17. The insulating glass unit according to one of Claims 12 through 15,
characterized in that the fastener has multiple clamps (4) and a tension band (29), the tension band (29) being guided on the clamps (4), preferably in front bulges (23) around the edges (30, 31) of the glass panes (2, 3), and tensioned.